Chapter 5 – Drilling and Production Operations

General Operating Standards and Objectives

Onshore oil and gas lease operations are subject to applicable laws, regulations, lease terms, the Application for Permit to Drill (APD), APD conditions of approval, Onshore Oil and Gas Orders, Notices to Lessees, and orders and instructions of the authorized officer. These include, but are not limited to, conducting operations in a manner that ensures the proper handling, measurement, disposition, and site security of leasehold production and protecting other natural resources, environmental quality, life, and property. The primary objective is to maximize the ultimate recovery of oil and gas with minimum waste and with minimum adverse effect on the ultimate recovery of other mineral resources, other natural resources, and environmental quality.

Production and sales reports must be filed with the Minerals Management Service (MMS), as appropriate, under regulatory requirements at 30 CFR Subpart B, using *Oil and Gas Operations Report (OGOR)*, Form MMS-4054.

Well Completion Report

A *Well Completion or Recompletion Report and Log, Form 3160-4*, is required to be filed within 30 days after completion of a well either for abandonment or production. The well completion report must reflect the mechanical and physical condition of the well. Geologic information, and when applicable, information on the completed interval and production is required.

Subsequent Well Operations

Productive wells and service wells periodically require repair and workover operations that may or may not require prior approval or subsequent notification. The operator should contact the surface management agency to confirm local requirements when surface disturbance activities are involved.

Operations requiring the prior approval of BLM's authorized officer include: deepening, plugging-back, non-routine fracturing jobs, recompletion in a different interval, and conversion to a service well. If there is additional surface disturbance, the proposal must include a Surface Use Plan of Operations. A subsequent report of operations must also be filed for these operations following completion of the work.

Operations, such as routine fracturing or acidizing jobs or recompletion in the same interval, do not require prior approval if such operations do not involve additional surface disturbance and conform to standards of prudent operating practice. However, a subsequent report of operations must be filed for these operations.

No prior approval or subsequent report is required for operations such as well cleanout or routine operations.

The required form for obtaining approval or reporting subsequent operations is *Sundry Notices and Reports of Wells, Form 3160-5* (Appendix 2). For more detailed information on reporting requirements, refer to 43 CFR 3162.3-2.

All wastes are to be treated or disposed of in an approved manner consistent with existing laws and regulations. Modifications of production handling equipment may require the submittal of a new site facility diagram or may require a new site security plan.

Approval Procedures

For operations requiring prior approval by the surface management agency or the BLM, the operator must submit a Sundry Notice or APD, as applicable. With the appropriate form, a detailed written statement of the plan of work must be provided to the authorized officer. When additional surface disturbance is proposed that was not previously authorized for the well pad or right-of-way, a description of any subsequent new construction, reconstruction, or alteration of existing facilities, including roads, dam sites, flowlines and pipelines, pits, tank batteries, or other production facilities on any lease, must be submitted to the authorized officer for environmental reviews and approval. On FS-administered lands, the BLM will coordinate with the FS to obtain its approval on surface disturbing activities.

Emergency repairs may be conducted without prior approval provided the authorized officer is promptly notified. Emergency repairs are defined as actions that are necessary in order to avoid threats to human safety or the environment, or to prevent significant loss of royalty income if such actions were delayed until prior approval could be given by the BLM authorized officer.

Production Startup Notification

Operators will notify the authorized officer by Sundry Notice (Form 3160-5) or letter no later than the fifth business day after any well begins production anywhere on a lease site or allocated to a lease site, or resumes production in the case of a well that has been off production for more than 90 days as required by Onshore Order No. 4 for oil and Onshore Order No. 5 for gas.

Measurement of Production

All oil, other hydrocarbons, and gas produced from the leased lands are to be put in a marketable condition to the extent economically feasible.

Oil production must be measured by tank gauging, positive displacement metering system, or other methods acceptable to the authorized officer. No oil is to be diverted to a pit except in emergency situations or with prior approval from the authorized officer. Oil in the pit must be recovered promptly, and the pit must be kept reasonably free from surface accumulations.

Gas production must be measured by orifice meters or other methods acceptable to the authorized officer. The flaring or venting of gas from leasehold operations must meet the requirements of Notice to Lessee, *NTL-4A: Royalty or Compensation for Oil and Gas Lost*, or an applicable Onshore Oil and Gas Order.

Disposal of Produced Water

Produced water from leasehold operations will be disposed of by subsurface injection, lined or unlined pits, surface discharge into channels or impoundments, or other methods, including beneficial use, acceptable to the authorized officer and in accordance with the requirements of Onshore Order No. 7, Disposal of Produced Water, and other Federal or State regulations.

Disposal of produced water often requires permits from State agencies or the Environmental Protection Agency (EPA), in addition to authorization by the BLM under Onshore Order No. 7. Disposal or use of water produced from Federal wells must be approved by the BLM before such operations begin, even if the operator has approval from the surface management agency. In cases of water disposal into pits or other impoundments, the structures must

conform to approved construction requirements in accordance with Onshore Order No. 7, BLM Manual 9172, and applicable State agency requirements.

Pits, water impoundments, and surface discharges that present a potential hazard to humans, livestock, wildlife, and other resources should be subject to appropriate mitigation, such as fencing, netting, caging, or covers, as appropriate. Refer to Figure 1 for exclosure fence construction standards.

Pollution Control/ Hazardous Waste

Operators are encouraged to substitute less toxic, yet equally effective products for conventional drilling products. All spills or leakages of oil, gas, salt water, toxic liquids or waste materials, blowouts, fires, personal injuries, and fatalities shall be reported by the operator to the BLM and the surface management agency in accordance with the requirements of *Notice to Lessees NTL-3A; Reporting of Undesirable Events*, and in accordance with any applicable local requirements.

The BLM requires immediate reporting of all Class I major events, such as spills of more than 100 barrels of fluid/500 MCF of gas released; fires that consume 100 bbl or more oil or 500 MCF gas; life threatening or fatal injury/loss of well control; release of reportable quantities of hazardous substances; spill, venting, or fire in sensitive areas, such as parks, recreation sites, wildlife refuges, lakes, reservoirs, streams, and urban or suburban areas (see the Spill Report format in Appendix 2). Volumes discharged during any of the above incidents will be estimated as necessary. Operators must take immediate action to prevent and control spills and the BLM, the surface management agency, and other applicable regulatory authorities must be consulted prior to treating or disposing of wastes and spills. Operators should become familiar with local surface management agency requirements for reporting and managing spills and leaks.

Containment structures sufficiently impervious to prevent a discharge to waters of the United States, such as containment dikes, containment walls, drip pans, or equivalent protection actions are to be constructed and maintained around all qualifying bulk oil storage facilities, including tank batteries, consistent with the Environmental Protection Agency's Spill Prevention, Control, and Countermeasure (SPCC) regulation (40 CFR 112). The containment structure must have sufficient volume to contain, at a minimum, the content of the largest storage tank containing liquid hydrocarbons within the facility/battery and sufficient freeboard to contain precipitation, unless more stringent protective requirements are deemed necessary by the authorized officer.

Containment dikes are not to be constructed with topsoil or coarse, insufficiently impervious spoil material. Containment is strongly suggested for produced water tanks. Chemicals should be placed within secondary containment and stored so that the containers are not in contact with soil or standing water and product and hazard labels are not exposed to weathering.

This central tank battery has been surrounded with a corrugated metal containment wall.

Noise Control

Noise that has the potential to disturb wildlife, livestock, and private surface owners or neighbors should be controlled to reduce sound levels. Suitable mufflers should be installed on all internal combustion engines and certain compressor components. Other noise reduction techniques to consider include siting wells, production facilities, compressors, roads to take advantage of topography and distance, and constructing engineered sound barriers or sound-insulated buildings. The placement of tank batteries and other facilities offsite and the use of remote well monitoring systems can reduce vehicle traffic in the field and the associated noise.

Visual/Scenic Resources

The operator must comply with the visual resource management objectives established in the land use plan for all activities that alter landforms, disturb vegetation, or require structures (BLM 8400 Manual Series). Site-specific mitigation practices may be required by the surface management agency to minimize visual impacts, while remaining consistent with the lessee's right to conduct operations under the lease. A primary consideration is the selection of a paint color that allows long-term facilities to blend in with the natural landscape background. Other considerations in more visually sensitive areas may include the aesthetic siting of roads, well locations, and production facilities; avoiding straight roads; reducing unnecessary disturbance; modifying production facility or well pad shape or size; using low-profile or below ground pumping units and low-profile tanks; manipulating vegetation to feather straight edges; using natural-looking earthwork berms or vegetative screening; and completing interim reclamation of disturbed areas.

Painting of Facilities

All long-term facility structures should be painted a color that enables the facilities to blend in with the natural background color of the landscape as seen from a viewing distance and location typically used by the public. The selected color should be one or two shades darker than the dominant background color, typically a vegetation color.

In visually sensitive areas, the use of properly chosen camouflage techniques may be an appropriate method for matching the texture of the landscape. Semi-gloss paints may be preferred because of their resistance to staining and weathering. Where necessary, the use of contrasting safety paint can be used to highlight and mitigate a potential hazard, such as a tripping hazard or protruding or mechanical edge that could harm the operator or public.

This pumping unit has been painted a color that helps it blend in with the surrounding juniper tree screening.

Placement of Production Facilities

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location. Consider placing tank batteries and natural gas compressors offsite in an area that is screened from view by vegetation or topography. Consider centralizing tank batteries at a location near the main access road, but screened from view, rather than placing tanks on each well pad. It is often possible to eliminate the need for all-weather roads to each individual well by constructing an all-weather access road to a centralized production facility.

Inspection and Enforcement

Leaseholds that are producing or are expected to produce significant quantities of oil or gas in any year, or have a history of noncompliance, will be inspected by the BLM at least once a year and all operations on National Forest System lands will be inspected by the FS at least once a year. Other factors, such as health and safety, environmental concerns, and potential conflict with other resources also determine inspection priority. Inspections of leasehold operations are made to ensure compliance with applicable laws, regulations, lease terms, the APD and its conditions of approval, Onshore Oil and Gas Orders, NTLs, and other written orders of the authorized officer. Operators are expected to initiate their own inspection programs, identify noncompliance, and take appropriate corrective actions, rather than relying on Federal inspections to identify problems.